Amendments to the Claims:

The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A signal processing device for processing a received signal to generate a sliced signal, comprising:

an equalizer for generating an equalized signal according to the received signal;

a multilevel quantizer, coupled to the equalizer, for utilizing X threshold/thresholds to quantize the equalized signal to thereby output the sliced signal being one of at least X+1 predetermined levels when a first mode is adopted, and utilizing Y thresholds to quantize the equalized signal to thereby output the sliced signal being one of at least Y+1 predetermined levels when a second mode is adopted, wherein the X and the Y are positive integers, the Y is more than the X, and the at least Y+1 predetermined levels are more than the at least X+1 predetermined levels; and

a control logic for adopting one of the first mode and the second mode by executing the following steps:

adopting the first mode and then comparing the equalized signal with the sliced signal which is the one of the at least X+1 predetermined levels for obtaining a first difference and comparing the equalized signal with a predetermined value which is different from any of the sliced signal and the X threshold/thresholds for obtaining a second difference;

adopting the second mode instead of the first mode when the first difference and the second difference together indicate an unreliable status; and

adopting the first mode when the first difference and the second difference together indicate a reliable status.

~~a multilevel quantizer coupled with the equalizer for selectively utilizing a first amount of one or more thresholds or a second amount of one or more~~

~~thresholds to quantize the equalized signal in order to generate the sliced signal, wherein the first amount is different from the second amount; and~~

~~a control logic for controlling the multilevel quantizer to quantize the equalized signal by the first amount of threshold/thresholds or the second amount of threshold/thresholds;~~

~~wherein the control logic controls the multilevel quantizer by executing the following steps:~~

~~comparing the equalized signal with a predetermined level for a first difference;~~

~~comparing the equalized signal with a predetermined constant for a second difference;~~

~~controlling the multilevel quantizer to quantize the equalized signal by the first amount of threshold/thresholds for the sliced signal, in the case of the first difference and the second difference having the same sign (positive/negative); and~~

~~controlling the multilevel quantizer to quantize the equalized signal by the second amount of threshold/thresholds for the sliced signal, in the case of the first difference and the second difference having different signs (positive/negative).~~

Claim 2 (Previously Presented): The device of claim 1 wherein the equalizer comprises a feed-forward equalizer (FFE), a feed-back equalizer (FBE), and an adder coupled respectively with the FFE and the FBE for outputting the equalized signal according to signals outputted from the FFE and the FBE.

Claim 3 (Previously Presented): The device of claim 1 further comprising:

a derotator coupled between the equalizer and the multilevel quantizer for derotating the equalized signal and inputting the derotated equalized signal into the multilevel quantizer; and

a rotator coupled between the multilevel quantizer and the equalizer for

rotating the sliced signal outputted from the multilevel quantizer and inputting the rotated sliced signal into the equalizer.

Claim 4 (Previously Presented): The device of claim 3 wherein the rotator is coupled with a feed-back equalizer of the equalizer for rotating the sliced signal, and the rotated sliced signal is a passband signal.

Claims 5-7 (Cancelled)

Claim 8 (Currently Amended): The device of claim 1 wherein the predetermined value ~~constant is determined by~~ results from a constant modulus algorithm.

Claims 9-10 (Cancelled)

Claim 11 (Currently Amended): The device of claim 1 wherein a first number of bit/bits of the sliced signal when the first mode is adopted is less than a second number of bits of the sliced signal when the second mode is adopted ~~output by the multilevel quantizer has a plurality of bits~~.

Claim 12 (Currently Amended): A signal processing device for generating a sliced signal according to a received signal, comprising:

an equalizer for generating an equalized signal according to the received signal;

a quantizer, coupled to the equalizer, for utilizing X threshold/thresholds to quantize the equalized signal to thereby output the sliced signal being one of at least X+1 predetermined levels when a first mode is adopted, and utilizing Y thresholds to quantize the equalized signal to thereby output the sliced signal being one of at least Y+1 predetermined levels when a second mode is adopted, wherein the X and the Y are positive integers, the Y is

more than the X, and the at least Y+1 predetermined levels are more than the at least X+1 predetermined levels; and

a control logic for adopting one of the first mode and the second mode by executing the following steps:

adopting the first mode and then comparing the equalized signal with the sliced signal which is the one of the at least X+1 predetermined levels for obtaining a first difference and comparing the first difference with a predetermined threshold which is different from any of the sliced signal and the X threshold/thresholds;

adopting the second mode instead of the first mode when the first difference is larger than the predetermined threshold; and

adopting the first mode when the first difference is smaller than the predetermined threshold.

~~a quantizer, coupled to the equalizer, for generating the sliced signal according to the equalized signal and a first amount of threshold/thresholds when a first slice mode is applied, and generating the sliced signal according to the equalized signal and a second amount of threshold/thresholds when a second slice mode is applied; and~~

~~a control logic, coupled to the quantizer, for controlling the quantizer to apply the first slice mode or the second slice mode through executing the following steps:~~

~~subtracting the equalized signal from a predetermined level to obtain a first value;~~

~~determining whether the quantizer is in a first status or a second status according to the first value;~~

~~if the quantizer is in the first status, controlling the quantizer to apply the first slice mode; and~~

~~if the quantizer is in the second status, controlling the quantizer to apply the second slice mode;~~

~~wherein the first amount of threshold/thresholds is different from the second~~

~~amount of threshold/thresholds.~~

Claim 13 (Cancelled)

Claim 14 (Currently Amended): The signal processing device of claim 12, wherein the control logic obtains the first difference by ~~further executes the following steps:~~

subtracting the equalized signal from the sliced signal which is the one of the at least X+1 predetermined levels ~~a predetermined constant to obtain a second value; and~~

~~comparing the first value with the second value, so as to determine whether the quantizer is in the first status or second status~~.

Claim 15 (Currently Amended): The signal processing device of claim 12 [[14]], wherein the control logic further executes the following steps: ~~compares the first value with the second value, so as to determine whether the first and second values have the same attribute and thereby determine that the quantizer is in the first status or second status.~~

adopting the first mode and then comparing the equalized signal with a predetermined value which is different from any of the sliced signal and the X threshold/thresholds for obtaining a second difference; and

adopting the second mode instead of the first mode when not only the first difference is larger than the predetermined threshold but also the first difference and the second difference together indicate an unreliable status.

Claim 16 (Cancelled)

Claim 17 (Currently Amended): A signal processing method for generating a sliced signal according to a received signal, comprising:

generating an equalized signal according to the received signal;

utilizing X threshold/thresholds to quantize the equalized signal to thereby output the sliced signal being one of at least X+1 predetermined levels when a first mode is adopted;

utilizing Y thresholds to quantize the equalized signal to thereby output the sliced signal being one of at least Y+1 predetermined levels when a second mode is adopted, wherein the X and the Y are positive integers, the Y is more than the X, and the at least Y+1 predetermined levels are more than the at least X+1 predetermined levels;

adopting the first mode and then subtracting the equalized signal from the sliced signal which is the one of the at least X+1 predetermined levels for obtaining a first difference and comparing the first difference with a predetermined threshold which is different from any of the sliced signal and the X threshold/thresholds;

adopting the second mode instead of the first mode when the first difference is larger than the predetermined threshold; and

adopting the first mode when the first difference is smaller than the predetermined threshold.

~~generating the sliced signal according to the equalized signal and a first amount of threshold/thresholds when a first slice mode is applied, and~~

~~generating the sliced signal according to the equalized signal and a second amount of threshold/thresholds when a second slice mode is applied; and~~

~~applying one of the first slice mode and the second slice mode according to the following steps:~~

~~subtracting the equalized signal from a predetermined level to obtain a first value;~~

~~determining whether the sliced signal is substantially correct or substantially incorrect according to the first value;~~

~~if the sliced signal is substantially correct, applying the first slice mode; and~~

~~if the sliced signal is substantially incorrect, applying the second slice mode;~~

~~wherein the first amount of threshold/thresholds is different from the second amount of threshold/thresholds.~~

Claims 18-19 (Cancelled)

Claim 20 (Currently Amended): The method of claim 17 [[19]], further comprising:

adopting the first mode and then comparing the equalized signal with a predetermined value which is different from any of the sliced signal and the X threshold/thresholds for obtaining a second difference; and

adopting the second mode instead of the first mode when not only the first difference is larger than the predetermined threshold but also the first difference and the second difference together indicate an unreliable status.

~~comparing the first value with the second value, so as to determine whether the first and second values have the same attribute and thereby determine that the sliced signal is substantially correct or substantially incorrect.~~

Claims 21-24 (Cancelled)

Claim 25 (Currently Amended): The method of claim 17, further comprising:

generating the sliced signal with a first number of bit/bits when the first

[[slice]] mode is adopted ~~applied~~; and

generating the sliced signal with a second number of bits ~~bit/bits~~ which is ~~different from~~ more than the first number of bit/bits when the second [[slice]] mode is adopted ~~applied~~.

Claim 26 (Cancelled)

Claim 27 (New): The device of claim 1, wherein the control logic further executes the following steps:

adopting the first mode and then comparing the first difference with a predetermined threshold which is different from any of the sliced signal and the X threshold/thresholds; and

adopting the second mode instead of the first mode when not only the first difference and the second difference together indicate the unreliable status but also the first difference is larger than the predetermined threshold.

Claim 28 (New): The device of claim 27, wherein the control logic obtains the first difference by subtracting the equalized signal from the sliced signal which is the one of the at least X+1 predetermined levels.